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GEOPHYSICAL VARIABLES AND BEHAVIOR: XCII. EXPERIMENTAL ELICITATION OF THE EXPERIENCE OF A SENTIENT BEING BY RIGHT HEMISPHERIC, WEAK MAGNETIC FIELDS: INTERACTION WITH TEMPORAL LOBE SENSITIVITY[1]

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Summary.—We tested the hypothesis that proportionally more people with above average numbers of complex partial epileptic-like experiences before the experiment would report a proximal presence during applications of a weak (1 microTesla), frequency-modulated magnetic field over the right hemisphere. Each of 16 subjects sat in a darkened, quiet room and was exposed for 20 min. to complex fields, applied through a helmet, either along the right hemisphere or across both hemispheres. None of the 8 subjects with below average scores reported a presence during the applications of the magnetic fields while 75% and 60% of the 8 subjects with above average scores reported a presence during right hemispheric and bilateral stimulation, respectively.

The experience of a proximal sentient being (a presence) may be the awareness of the right hemispheric homologue of the sense of self. The sense of self would be generated by traditional left hemispheric, primarily linguistic, processes. According to the hypothesis of vectorial hemispheric function (Persinger, 1993), stimuli that promote the intrusion of this right hemispheric equivalent into left hemispheric awareness increase the probability of the experience. We have found that stimulation of the right temporoparietal region with a frequency-modulated, weak (1 microT) magnetic field results in a reliable sensed presence in about 50% of randomly selected volunteers (about 12% respond in a sham field when sitting in the dark, quiet room).

To discern if temporal lobe sensitivity, as inferred by the numbers of complex partial epileptic-like experiences (Persinger & Makarec, 1993), promotes both the experience of a sensed presence as well as the responsiveness to a weak complex magnetic field we exposed university students (19 to 25 years of age) to two patterns. They were a frequency-modulated (Thomas pulse) pattern with pixel durations of 3 msec. primarily over the right hemisphere for 20 min. and a burst-firing magnetic field with 3-msec. pixel durations presented once every 4 sec. for 20 min. through both hemispheres (see Persinger, Tiller, & Koren, 2000). The order of the presentations was reversed in half the subjects.

Because the effect size for this phenomenon is large we estimated that only 16 subjects would be required to demonstrate a statistically significant ($p < .05$) effect. Four men and 4 women whose score for the numbers of complex partial epileptic signs (Persinger & Makarec, 1993) were 1.5 *SD*s above and 4 men and 4 women whose scores were more than 1.0 *SD* below the mean volunteered for a relaxation study. They were not aware of their scores or the primary purpose of the experiment.

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During the exposures each subject was blindfolded and sat alone in a comfortable chair within an acoustic chamber. The fields were applied through fixed solenoids embedded in a helmet. At the end of each exposure, the subjects completed an exit questionnaire (Persinger, *et al.*, 2000) of 20 items. The responses to item, "I experienced a presence," and three control items referring to tingling sensations, dissociation, and anger, were extracted as no or yes responses for each subject.

Hierarchical loglinear analyses as a function of right-side application, bilateral application, below or above average temporal lobe sensitivity, order of field presentation, and sex indicated only a two-way interaction for the sensed presence but not the other three experiences were statistically significant ($\chi_{10}^2 = 24.19$, $p < .01$). *Post hoc* analyses of the partial chi-squares showed the source of this significant disconcordance was due to more subjects with above-average complex partial experiences reporting a presence during right hemispheric stimulation (partial $\chi_1^2 = 6.93$, $p < .01$) but not during bilateral stimulation.

Whereas 75% of the subjects with above average temporal lobe sensitivity, as inferred by the complex partial epileptic-like signs, reported a presence, none of the below-average sensitive subjects reported a presence; 60% and 0% of these two groups, respectively, reported a presence after bilateral stimulation ($\chi_1^2 = 3.69$, $p > .05$). For comparison, according to our database collected during the last decade, 20% of subjects with this range of above-average temporal lobe sensitivity and 9% of those with below-average scores have reported a sensed presence when exposed to sham-field conditions. The contribution of geomagnetic activity to these experiences must still be considered (Persinger & Richards, 1995).

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